



IN REPLY
REFER TO:

MP-200
PRJ-1.10

United States Department of the Interior
DWR WAREHOUSE

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

97 JUL 28 PM 3:15

JUL 28 1997


Ms. Kate Hansel
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, California, 95814

Subject: Restoration Project Proposal

Dear Ms. Hansel:

In response to your 1997 Category III Request for Proposals (RFP), enclosed are 10 copies of our San Joaquin River Integrated Nonstructural Floodplain Management and Ecosystem Restoration Project proposal. This proposal develops a comprehensive approach to integrating ecosystem restoration opportunities along the lower San Joaquin River with restoration of natural floodplain values. We request your favorable consideration of this proposal. If you have any questions regarding this proposal, feel free to contact the principal investigator as identified in the RFP.

Sincerely,


Edward Solbos
Regional Engineer

Enclosure

FI-192

I. EXECUTIVE SUMMARY

a. **Project Title and Applicant Name:** San Joaquin River Integrated Nonstructural Floodplain Management and Ecosystem Restoration Project; U.S. Bureau of Reclamation

b. **Project Description and Primary Biological/Ecological Objectives:** The San Joaquin River Integrated Nonstructural Floodplain Management and Ecosystem Restoration Project focuses on integrating floodplain and ecosystem restoration goals. Extending along the San Joaquin River from the confluence of the Merced River downstream to Old River, the project is broken into two elements. The first element focuses on development of a river corridor and management strategy that meets floodplain and ecosystem goals. The second element focuses on implementation of nonstructural flood control solutions to levee breaks which occurred during January 1997.

Priority habitats which will be improved by this project are seasonal wetland and aquatic habitat, shaded riverine aquatic habitat, and riparian forest. Habitat improvements will improve migration of fall run chinook salmon and steelhead trout species within the San Joaquin River.

c. **Approach/Tasks/Schedule:** Integration of ecosystem and floodplain restoration goals is accomplished by recognizing linkages between physical processes of rivers (geomorphics, hydraulics, hydrology, etc.) and biological processes. This technical approach focuses on recognition and reestablishment of natural river processes. The table below shows general tasks and a milestone schedule.

General Task & Milestone Schedule

ACTIVITY/MILESTONE	COMPLETION DATE
Element 1	
1. Outreach/Technical Evaluations	April 1999
2. Outreach, River Corridor Plan, Management Strategy, and NEPA/CEQA Compliance	June 2000
Element 2	
1. Site Specific Project Development	March 1998
2. Acquisition	July 1998
3. Construction	November 1998

d. **Justification for Project and Funding by CALFED:** This project focuses on ecosystem restoration and floodplain management consistent with CALFED goals and strategies. Current flood control policies established under Office of Management and Budget guidance promote nonstructural floodplain solutions to flood control needs. In addition U.S. Department of Interior policies promote integration of ecosystem restoration goals with floodplain management strategies. The ecosystem restoration, floodplain, and stakeholder strategies established by CALFED provide a unique forum for implementing the strategies outlined in this proposal.

e. **Budget Costs and Third Party Impacts:** The following table summarizes costs by proposal element and funding category.

FUNDING CATEGORY	ESTIMATED COST
<i>Element 1</i>	778,263
Services	778,263
<i>Element 2</i>	13,438,000
Services	1,617,000
Acquisition	5,692,999
Construction	6,129,000
<i>Element 3</i>	722,200
Services	722,200

No third party impacts are anticipated as the result of implementing this program. The scope of this proposal covers many significant issues and attempts to develop a comprehensive river corridor management strategy on a consensus basis.

f. **Application Qualifications:** The U.S. Bureau of Reclamation has a strong capability in all aspects of water resources management. Reclamation has a strong track record in environmental restoration projects as well as water supply and resource management issues. Reclamation has a strong history in providing technical support to the Corps of Engineers during emergency flood response periods dating back prior to the great Mississippi floods of 1983. Reclamation's unique development as an agency over time provides an unmatched capability to understand agricultural, municipal, and environmental stakeholder viewpoints.

g. **Monitoring and Data Evaluation:** A plan for monitoring and evaluation will be developed as part of the management plan.

h. **Local Support/Coordination with Other Programs/Compatibility with CALFED Objectives:** This proposal has been coordinated with the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service. This effort will be coordinated with nonstructural flood control initiatives of the Interagency Task Force and their initiatives to implement nonstructural alternatives in repairing levees damaged in the January 1997 floods. Willing landowners have been identified for portions of this proposal. Other aspects of this proposal involve identification of additional willing landowners. Goals of this proposal complement goals and objectives of the Central Valley Project Improvement Act, the San Joaquin River Action Plan, and the San Joaquin River Management Program. The proposal is compatible with ecosystem restoration goals of CALFED for the San Joaquin River as well as CALFED flood control objectives.

II. TITLE PAGE

a. Title of Project

**San Joaquin River Integrated Nonstructural Floodplain Management and
Ecosystem Restoration Project**

b. Name of Applicant/Principle Investigators

U.S. Bureau of Reclamation:

Mailing Address:

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U.S. Bureau of Reclamation
Attention: MP-205
2800 Cottage Way
Sacramento, California 95825-1898

Office Address:

1825 Bell Street
Suite 102
Sacramento, California

Phone: (916) 978-5308

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E-Mail: dgore@2mp200.mp.usbr.gov

c. Type of Organization

Federal Government Agency

d. Tax Identification Number and/or Contractor License

Not applicable

e. Technical and Financial Contact Person

Same as above.

f. Participants

U.S. Bureau of Reclamation in coordination with:
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
Selected Reclamation Districts and Landowners

g. RFP Project Group Types

Construction; Acquisition; Other Services

III. PROJECT DESCRIPTION

a. Project Description and Approach

The San Joaquin River Integrated Nonstructural Floodplain Management and Ecosystem Restoration Project focuses on integrating floodplain and ecosystem restoration goals. The proposed project extends along the San Joaquin River from the confluence of the Merced River downstream to the Old River confluence. The project is broken into two elements. The first element focuses on development of a river corridor and an associated management strategy that meets floodplain and ecosystem goals. The element focuses on both technical aspects of developing a river corridor as well as a consensus building process. This process will lead to a management strategy that builds a partnership between willing landowners and the government. The second element focuses on implementation of nonstructural flood control solutions to levee breaks which occurred during the January 1997 floods. This effort is designed to work in full cooperation with the ITF agencies in their current efforts to restore levee breaches. Implementation of these specific projects will serve as demonstration areas. These two elements are described further below.

Element 1

The first element of this project includes the definition of a river corridor of the lower San Joaquin River integrating the physical hydraulic and geomorphic principles of river mechanics with the biological principles of the riparian and aquatic species. The river corridor will define a riparian zone which can reasonably be expected to naturally reestablish and sustain itself while providing flood protection through a nonstructural approach of reestablishing natural floodplain areas. River segments will be delineated using physical, political, institutional, and socio-economic factors. Specific ecosystem and nonstructural floodplain management restoration opportunities will be identified for each river segment. A management strategy, including delineation of management responsibilities, will then be developed for the river corridor. This management strategy will be developed on a consensus basis with the goal of developing a close partnership with landowners and government agencies.

Element 2

The second element of this project is to work with the Interagency Task Force (ITF) to implement nonstructural solutions to levee damaged areas which occurred as a result of the January 1997 floods. The ITF, a multi agency group under the leadership of the Corps of Engineers, was established after the January floods with the intent of identifying and implementing nonstructural flood control solutions in areas where levee failures occurred. Under their policy the Corps of Engineers can contribute funding to implement nonstructural solutions

up to the amount of an equivalent structural solution. The intent of this project element is to enable implementation of identified nonstructural solutions where otherwise policy limitations would prevent such implementation. Element 2 focuses primarily on developing nonstructural alternatives in relation to the Corps of Engineers' Public Law 84-99 rehabilitation efforts. Sites have been identified by CALFED and other agencies of the ITF as areas where nonstructural flood control solutions are appropriate. A significant effort needs to be coordinated with the Reclamation Districts and individual landowners in these areas. If willing sellers cannot be developed at these sites efforts will be redirected and coordinated with the Corps of Engineers, the Reclamation Board, and others to develop alternative sites where nonstructural solutions can be implemented. Currently opportunities have been identified for Reclamation Districts 17, 524/544, 2124, 2099, 2100, and 2102, and areas along Salt and Mud Sloughs along the San Joaquin River.

b. Location and/or Geographic Boundaries of Project

This project is located in the primarily in the San Joaquin River Basin. Element one of this project extends along the San Joaquin River from the confluence of the Merced River to the confluence with Old River. The second element of this project is located at various January 1997 levee break sites primarily found along the lower San Joaquin River. However, some sites may be located on the San Joaquin River above the confluence with the Merced River or at locations near the Delta, along the Consumnes River, or within other CALFED geographic/watershed subbasins. This project area spans Merced, Stanislaus, San Joaquin, and Sacramento Counties. Figure 1 shows the study area.

c. Expected Benefits

The priority habitats which will be improved by this project are seasonal wetland and aquatic habitat, shaded riverine aquatic habitat, and riparian forest. Improvements in these habitats will ultimately improve migration of fall run chinook salmon and steelhead trout species within the San Joaquin River.

Water resources development on the San Joaquin River and its tributaries has significantly altered hydrologic conditions within the river. These changes in flow regime have altered hydraulic characteristics of the river including depth, velocity, flow variability, dynamic geomorphic stability, channel geometry, meander belt width, and many other physical parameters that directly bear on the biological viability of the river. This development within the basin has also included floodplain changes. Structural levee systems established along the San Joaquin River have isolated historical floodplain areas. This structural flood control system has also in some areas prevented natural channel meandering. The lower river has aggraded in many locations as a result of the flow regime changes and the confinement of the river itself.

Element one of this proposal will lead to the restoration of historical flood plain areas and will allow the river to reestablish in a more dynamic equilibrium state. Ultimately, this will

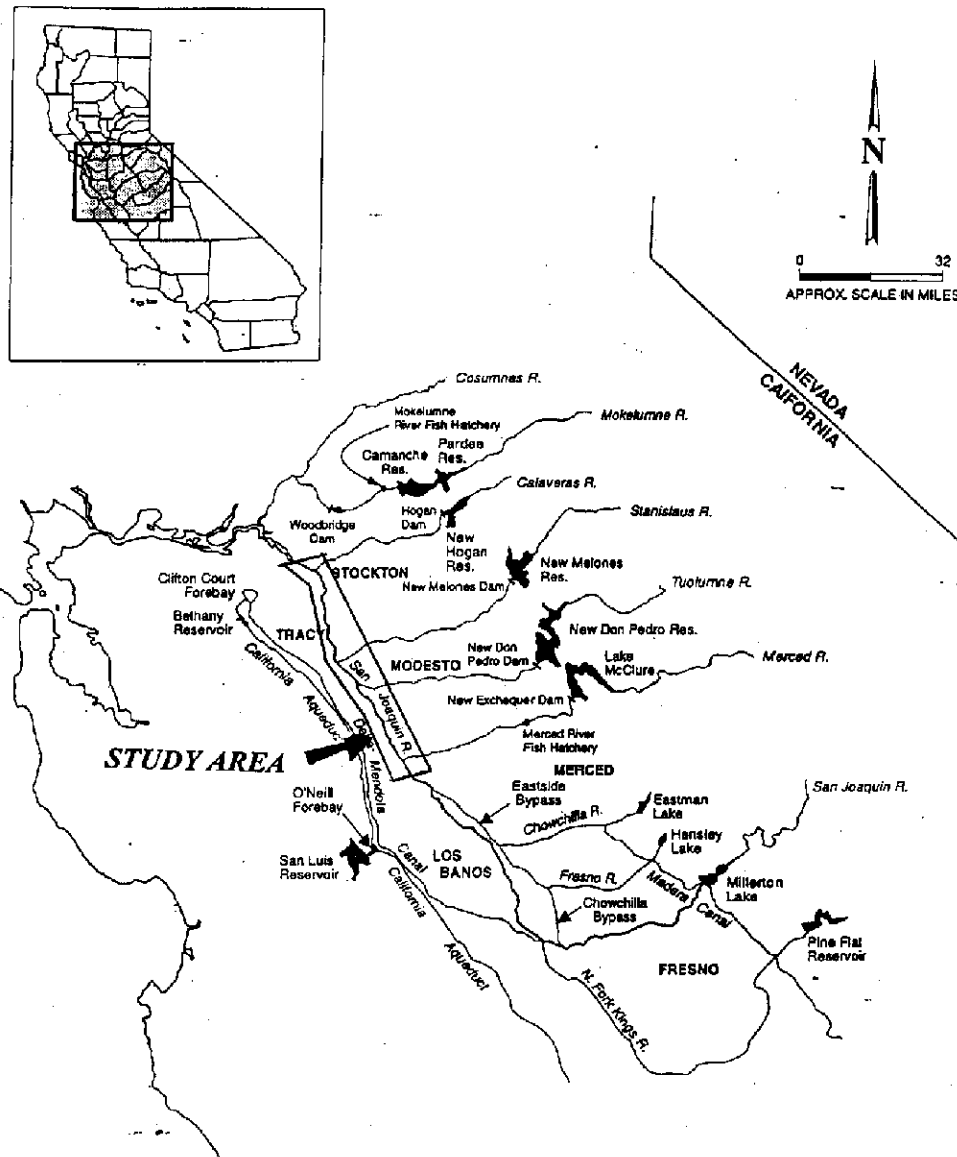


Figure 1. Study Area

promote more favorable biological conditions. The second element of this proposal will lead to the immediate implementation of several site specific projects restoring historic floodplain areas as well as allowing for habitat development. This proposal also allows the integration of floodplain management goals with CVPIA restoration goals, CALFED restoration goals, and goals of the San Joaquin River Action Plan. This nonstructural floodplain management strategy potentially leads to lower future financial demands for Federal and State emergency flood recovery aid.

d. Background and Biological/Technical Justification

The floods of January/February 1997 led to extensive flooding and associated property damage throughout the State of California. Subsequent to these floods, the Office of Management and Budget (OMB) issued guidance (memorandum dated February 18, 1997) to the Corps of Engineers (Corps) and other Federal agencies for addressing requests for levee repair and associated restoration actions. This guidance directed that, to the extent practicable, nonstructural alternatives and design modifications were to be considered if they could be shown to provide a comparable level of flood protection to landowners in the immediate vicinity of the damage and to adjacent upstream and downstream localities. Furthermore, the goal in considering nonstructural alternatives was to lower long-term cost to the taxpayers associated with flood control, improve environmental conditions, including water quality, and assist public and private landowners in fulfilling their conservation objectives or obligations related to protected species, wetlands restoration, and riparian habitat protection.

As a result of this guidance, an Interagency Task Force (ITF) was established in March 1997 under the leadership of the Corps to identify and implement nonstructural solutions to levee repairs. Reclamation has been an active participant on the ITF, and a number of potential locations for nonstructural solutions have been identified. To date, however, constraints have been identified that have limited the extent and pace of implementation of these types of alternatives. Constraints which have been identified to date include:

- OMB directives as well as new policies developed by the Corps mandate that nonstructural alternatives be implemented only on a willing seller basis.
- The P.L. 84-99 authority under which the Corps is repairing levee problem areas deals solely with site specific levee breaches or damages. Potential benefits deriving from a broader perspective tend to get lost in the focused look at the individual sites.
- P.L. 84-99 does not allow for a broader system wide flood control approach. The functional hydraulic improvements (i.e. lowering water surface elevations) of the flood control system are generally not improved greatly by very limited implementation of nonstructural alternatives. A broader system wide approach is more effective in realizing benefits of nonstructural solutions.

Under Corps policy, funding for nonstructural solutions is limited to the funds that would have been expended for a structural fix if that fix is less expensive. This results in a need to identify additional sources of funding.

Clearly, in order for nonstructural solutions to be successful, well-developed State/Federal and local partnerships are required. The ability of the local entities and the State Reclamation Board to provide needed assurances to local landowners related to maintaining existing levels of flood protection through the nonstructural process is a critical need. Coordinated management strategies and responsibilities need to be defined and delineated.

e. Proposed Scope of Work

Table 1 on the following pages outlines specific tasks associated with this project.

f. Monitoring and Data Evaluation

A plan for monitoring and evaluation will be developed as part of the management plan.

g. Implementability

The Corps of Engineers is scheduling a long-term basin wide evaluation of the San Joaquin River to begin in the fall of 1998 if Congressional funding is provided. In addition the Corps of Engineers has available funding to implement nonstructural flood control solutions under its current P.L. 84-99 efforts. Efforts under the proposal outlined in this RFP would enable coordination of multi agency ecosystem and other water management goals with nonstructural floodplain management goals to be established under the Corps basin wide effort. Any final corridor plan developed under this proposal would be fully coordinated with Corps of Engineers, the Reclamation Board, the U.S. Fish and Wildlife Service, and other agency initiatives. Discussions related to this proposal have been initiated with these agencies. This proposal supplements other nonstructural proposals being submitted by these other agencies. By fully integrating other water resource goals with the nonstructural floodplain restoration goals the Implementability of any long-term program will be enhanced. As part of this proposal an outreach program is developed to gather support for a corridor management program. The approach outlined in this proposal will also work to eliminate barriers which have been identified by the Corps in their efforts to implement nonstructural alternatives as part of their Public Law 84-99 repair efforts. This will enhance the implementability of this proposal.

Table 1. Proposed Scope of Work

Activity	Description
<i>ELEMENT 1 - Nonstructural Floodplain and Ecosystem Restoration Corridor</i>	
1. Current Aerial Photo	This activity will develop aerial photography of the San Joaquin River from just downstream of the confluence of the Old River with the San Joaquin River to just upstream of the confluence with the Merced River suitable for stereoscopic analysis.
2. River and Floodplain Cross Sections	River and Floodplain Cross Sections: Develop floodplain and river channel cross section topography of the San Joaquin River at approximately ½ mile increments with additional as necessary to identify significant topographic features and hydraulic control points.
3. Historic Aerial Photo Collection and River Corridor Meander Analysis	Collect a series of vertical aerial photographs of the San Joaquin River dating back as far back as possible. The objective would be to locate a series of 10 to 20 different years of aerial photography which will define historic meandering of the river and which span several significant hydrological years.
4. Historical Hydrological Flood Analysis	Inventory historical flood events on the lower San Joaquin River and relate flow and frequency data to those events.
5. Flow - Frequency and Geomorphic Analysis	Update flow-frequency data for the lower San Joaquin River for up to 4 locations between Old River and the Merced river. Perform a baseline geomorphic evaluation of the lower river to determine distinct geomorphic reaches, sediment yield, and sediment transport conditions within the river.
6. Physical/Operational/Institutional Constraint Survey	Through a variety of means inventory the lower river for physical constraints such as bridges, pipeline crossings, irrigation turnout and drainage structures, and other items as appropriate. This will include an inventory of irrigation and drainage facilities that may be affected by development of a river corridor along the river. Also identify boundaries of counties, reclamation districts, water districts, and any other entities which might influence management along the river corridor.
7. Real Estate Inventory	Identify landowners along the San Joaquin River from Old River to the Merced River. Develop preliminary cost estimates to purchase appropriate level of real estate interest.
8. Water Surface Profile Analysis for Selected Flows	Develop water surface profile for the San Joaquin River from the Merced River downstream to Old River. Water surface profiles should be developed for the 2-year, 10-year, 25-year, 50-year, and 100-year flow events.
9. Riparian Corridor Survey	Through aerial photography analysis inventory existing riparian habitat along the San Joaquin River.
10. Groundwater Survey	Analyze lateral extent of groundwater within an identified riparian corridor zone.
11. Link Physical/Biological Criteria for Naturally Regenerating and Self Sustaining Riparian Habitat	Relate physical/biological criteria needed for naturally regenerating and self sustaining riparian corridor to existing flow regime to existing groundwater and surface water flow conditions. Identify potential modifications to the existing river channel which could improve riparian habitat restoration and assess geomorphic affects. Delineate corridor band in which habitat can be reasonably be expected to naturally regenerate and sustain itself.

12. Link Floodplain and Ecosystem Restoration	Compare riparian ecosystem restoration corridor identified in item 11 to water surface profiles to relate nonstructural floodplain restoration to ecosystem restoration. Determine appropriate corridor widths.
13. Formulate Detailed Corridor Plan	Based upon data identified above develop a detailed corridor plan. Carry out necessary designs of facilities associated with establishment of corridor. Designs may include setback levees, floodproofing of existing irrigation and drainage facilities, upgrading of roads, and other features as necessary.
14. NEPA/CEQA	Carry out necessary activities for NEPA/CEQA compliance with corridor development.
<i>ELEMENT 2 - Site Specific Nonstructural Flood Control Solution Implementation</i>	
15. RD 17 Plan Formulation/Design/ Spec./ Acq./Construction	Coordinate with the Corps of Engineers in development of this site into a nonstructural solution. Do necessary activities related to plan formulation, design activities, plans and specifications, acquisition, and construction of facilities if required. Also included will be development and implementation of a management strategy for the associated project.
16. RD 524/544 Plan Formulation/Design/ Spec./ Acq./Construction	Coordinate with the Corps of Engineers in development of this site into a nonstructural solution. Do necessary activities related to plan formulation, design activities, plans and specifications, acquisition, and construction of facilities if required. Also included will be development and implementation of a management strategy for the associated project.
17. RD 2124 Plan Formulation/Design/ Spec./ Acq./Construction	Coordinate with the Corps of Engineers in development of this site into a nonstructural solution. Do necessary activities related to plan formulation, design activities, plans and specifications, acquisition, and construction of facilities if required. Also included will be development and implementation of a management strategy for the associated project.
18. RD 2099, 2100, 2102 Plan Formulation/Design Spec./ Acq./ Construction	Coordinate with the Corps of Engineers in development of this site into a nonstructural solution. Do necessary activities related to plan formulation, design activities, plans and specifications, acquisition, and construction of facilities if required. Also included will be development and implementation of a management strategy for the associated project.
OVERALL	
19. Management/Coordination Outreach with Other Agencies and Private Entities	Coordinate with all stakeholders in developing the corridor plan and developing a management strategy. This work will include outreach with landowners to develop an outreach program to develop support for a comprehensive corridor management plan for flood control as well as ecosystem restoration plan.
20. Develop GIS Database	Develop GIS database of floodplain data, cross section data, riparian vegetation survey data, institutional boundaries of districts and other agencies, groundwater data, and land ownerships.
21. Develop river corridor management strategy.	Document a coordinated management strategy for a river corridor. This will include identification of responsible entity, extent of management activities, and development of a monitoring and data evaluation program.
22. Report Documentation	Prepare appropriate reports documenting all activities related to project.
23. Peer Review	Peer review all technical aspects of proposed actions.

IV. COSTS & SCHEDULE to IMPLEMENT

a. Budget Costs

This program requests funds for services, acquisition, and construction. A total of is \$3117,463 requested for services, \$5,692,999 for acquisition, and \$6,129,000 for construction. Table 2 below provides a breakdown of costs by proposal element and funding category.

Element 1 of this proposal consists primarily of services to develop a river corridor management plan that integrates ecosystem restoration goals with nonstructural floodplain goals. The total cost of Element 1 is \$778,263 and falls under the category of services. Element 2 of this proposal consists of a combination of activities for services, acquisition, and construction. The total cost of this element is \$13,438,000. Table 3 provides a more detailed breakdown of costs.

Table 2. Cost Breakdown By Proposal Element and Funding Category

FUNDING CATEGORY	ESTIMATED COST
Element 1	778,263
Services	778,263
Element 2	13,438,000
Services	1,617,000
Acquisition	5,692,999
Construction	6,129,000
Element 3	722,200
Services	722,200

Table 3. Budget Costs

Project Phase and Task	Direct Labor Hours	Direct Labor Dollars	Overhead Labor	Service Contracts	Mat. and Acquisition Const.	Misc. and Other Direct Costs	Total Cost	RFP Project Group Type
<i>ELEMENT 1 - Nonstructural Floodplains and Ecosystem Restoration Corridor</i>							778,263	
1. Current Aerial Photo	625	50,000	42,000	14,800	0	39,000	145,800	Services
2. River and Floodplain Cross Sections	230	18,503	17,578	0	0	16,957	53,038	Services
3. Historic Aerial Photo Collection and River Corridor Meander Analysis	20	1,500	1,425	22,200			25,125	Services
4. Historical Hydrological Flood Analysis	240	10,000	9,200		1,000		20,200	Services
5. Flow - Frequency Analysis and Geomorphic Analysis	632	28,100	25,900	0	0	6,000	60,000	Services
6. Physical/Operational/Institutional Constraint Survey	160	8,000	6,000	0	0	500	14,500	Services
7. Real Estate Inventory	160	6,000	4,000	0	0	0	10,000	Services
8. Water Surface Profile Analysis for Selected Flows - Determine Appropriate Nonstructural Floodplain Corridor	840	37,050	34,200	0	0	3,750	75,000	Services
9. Existing Riparian Corridor Survey	625	26,000	24,000	0	0	5,300	55,300	Services
10. Groundwater Survey	160	8,000	6,000	0	4,000	500	18,500	Services

11. Link Physical/Biological Criteria for Naturally Regenerating and Self Sustaining Riparian Habitat Restoration	370	15,600	14,400	0	0	0	30,000	Services
12. Link Nonstructural Floodplain and Ecosystem Restoration Corridor	370	15,600	14,400	0	0	0	30,000	Services
13. Formulate Detailed Corridor Plan	250	90,400	70,400	0	0	0	160,800	Services
14. NEPA/CEQA Documentation	1,000	41,600	38,400	0	0	0	80,000	Services
ELEMENT 2 - Site Specific Nonstructural Flood Control Solution Implementation							13,435,000	
15. RD 17								
Feasibility Investigation/Design/Preconstruction Specification	10,100	416,000	384,000	2,500	3,500		806,000	Services
Acquisition	L.S.	17,000				2,650,000	2,667,000	Acquisition
Construction	L.S.	224,000				2,240,000	2,464,000	Construction
16. RD 524/544								
Feasibility Investigation/Design/Preconstruction Specification	10,100	416,000	384,000	7,500	3,500		811,000	Services
Acquisition	L.S.	25,000				3,000,000	3,025,000	Acquisition
Construction	L.S.	300,000				2,700,000	3,000,000	Construction
17. Salt Slough	L.S.	10,000				400,000	410,000	Construction
18. RD 2099, 2100, 2102, 2124	L.S.	5,000				250,000	255,000	Construction

b. Schedule Milestones

Table 3 provides a general overall milestone schedule for this effort.

Table 3. General Milestone Schedule

ACTIVITY/MILESTONE	COMPLETION DATE
<i>Element 1</i>	
1. Outreach/technical Evaluations	April 1999
2. Outreach, River Corridor Plan, Management Strategy, and NEPA/CEQA Compliance	June 2000
<i>Element 2</i>	
1. Site Specific Project Development	March 1998
2. Acquisition	July 1998
3. Construction	November 1998

c. Third Party Impacts

No third party impacts are anticipated as the result of implementing this program. The scope of this proposal covers many significant issues and attempts to develop a comprehensive river corridor management strategy on a consensus basis that will integrate nonstructural floodplain management goals with ecosystem restoration goals of CALFED and numerous other multi agency restoration programs. The proposal seeks to develop consensus among governmental and private stakeholders on appropriate means of integrating nonstructural floodplain management with ecosystem restoration.

V. APPLICANT QUALIFICATIONS

The U.S. Bureau of Reclamation has a strong capability in all aspects of water resources management. Reclamation has a strong track record in environmental restoration projects as well as water supply and resource management issues. Reclamation has a strong history in providing technical support to the Corps of Engineers during emergency flood response periods. Reclamation's unique development as an agency over time provides an unmatched capability to understand agricultural, municipal, and environmental stakeholder viewpoints. Table 5 summarizes the expertise and experience of key individuals who will participate in this project. Reclamation will accomplish the efforts outlined in this RFP with Reclamation staff, including resources at its Mid-Pacific Regional Office (MP), Sacramento; Technical Services Center (TSC), Denver; and Willows Construction Office, in close coordination with the U.S. Fish and Wildlife Service and other Federal, State, and local agencies. Reclamation may obtain the services of consultants, contractors, and subcontractors to accomplish specific tasks, consistent with State and Federal regulations and requirements.

Table 5. Applicant Qualifications

Individual	Qualifications
Thomas E. Beddow	Ecologist/wildlife biologist, TSC, providing expert technical assistance in the development and analysis of wetland and riparian habitats, wetland and terrestrial wildlife resources, and other environmental resources. Team Leader of Wildlife and Vegetation Working Group for Snake River Resources Project, and Reclamation representative on Federal Interagency working group for coordinating ongoing Federal agencies' wetlands research and development activities, including preparation of "Guide for Evaluating the Success of Restored and Established Wetlands."
Thomas Bellinger	Technical specialist, TSC, in watershed management, drought/supply assessment, river/reservoir simulation modeling, and precipitation/runoff relationships. Involved in several projects involving analysis/planning of small stream corridor restoration, including John Day River Basin and Willamette River Basin in Oregon. Previous experience with FWS on studies of wetlands, water quality analysis, fishery concerns, water right concerns, and wetland restoration activities.
Jimmy Goodwin	Registered engineer, MP, with 20 years' experience in analysis, design, and project management of a broad range of facilities, including water supply pipelines and canals, water resources systems, levees, and roads; preparation and monitoring of field exploration programs; preparation of specifications, drawings, and contracts; and construction support for specialized foundation testing.
Dave Gore	Registered PE with 19 years in water resources development projects with the Bureau of Reclamation and Army Corps of Engineers. Ecosystem restoration and nonstructural flood control experience includes work on the Trinity River, California, San Joaquin River, and Truckee River, Nevada.

Charles Howard	Registered geologist, MP, with over 30 years' experience in the full range of regional projects and programs. Experience includes design and implementation of geologic exploration programs for a wide range of water resources projects and oversight of ground-water investigations throughout California.
William Knoblauch	Appraiser, MP, with over 20 years' experience related to agricultural, industrial, residential, and commercial property.
Monte Lorenz	Chief of Surveying and Photogrammetry, MP, with over 20 years' experience in surveying, photogrammetry, and aerial mapping. Capabilities include use of latest Global Positioning System equipment.
Joe Lyons	Technical specialist, TSC, in hydrology, sedimentation, and river hydraulics. Involved in water conservation planning and analysis of rivers for fish and wildlife resource impact assessments, and sediment data collection and analysis. Prior experience with FWS for analysis/correction of regional NWR water-related concerns including wetland impacts and concerns. Research on restoration of riparian and aquatic habitats in Upper Colorado River Basin, and coauthor of UNESCO text on Environmental Aspects of Sedimentation
Patrick Mangan	Senior biologist and project manager, TSC Ecological Planning and Assessment Group, including technical consultant in fisheries, aquatic ecology, and wetland management. Extensive prior experience includes Project Manager for wetland creation and preservation projects, Corps of Engineers; fishery research biologist, Everglades National Park, and fisheries biologist, Colorado River Fisheries Project, FWS.
Mary Marshall	Environmental specialist, MP, extensive experience in environmental resources and engineering with Corps of Engineers. Projects include planning for New Castle County, Delaware, Water Supply Project and EIS; participation in interagency effort to assess Tulpehocken Creek Watershed, PA, and identify water quality concerns and solutions; and development of EA's and application of non-structural and environmental restoration alternatives for floodplain enhancement, associated with "1997 Flood Recovery, PL 84-99 Levee Rehabilitation Program, CA."
James McDonough	Chief of Construction Contract Branch, MP, with extensive experience in all aspects of Federal contracting.
Graham McMullen	Appraiser and chief of MP Land Resources Branch, with over 20 years' experience in appraisal and acquisition of a broad range of property types. Supervised Reclamation's acquisition of Prospect Island.
John Petrovsky	Landscape architect and environmental planner with 18 years' consulting experience, and management/direction over 60 assignments for Federal, State, local governments, private landowners, scientific organizations and industry. Experience includes Principal Investigator for Cascade Range Reservoir Management Plan (ID), New Melones Reservoir Resource Management Plan (CA); and Principal-in-Charge of scoping report for Central Valley Project Consolidated and Expanded Place of Use EIR.
Leonard Seifried	Realty specialist, MP, with 20 years' experience in negotiations and acquisition for a broad range of land types.

Francisco Jose Marques Simoes, Ph.D.	Sedimentation and River Hydraulics Group, TSC, and Associate Professor at Center for Computational Hydroscience and Engineering, University of Mississippi. Extensive experience in numerical modeling of large-scale free surface flows, including turbulence modeling, sedimentation processes, pollutant transport, and water quality. Publication of several articles in distinct areas, including open channel hydraulics.
Eric A. Stiles	Project coordinator, technical specialist, and research scientist, TSC, for water and wastewater treatment, watershed planning, and aquatic, wetland, and riparian restoration. Projects include Tres Rios, Veterans Park, Eastern Municipal Water District, City of Nogales (design and construction of multipurpose wetlands), and Minidoka Project (wetlands for water quality enhancement and wildlife habitat). TSC specialist in wetland bio-chemical processes and design for water quality.
James West, Ph.D.	MP Region archeologist, with extensive experience across the broad base of regional projects and programs.
Lawrence H. White	Wildlife staff specialist, TSC, providing technical assistance in environmental compliance and water-related resource management. Planned and conducted riparian inventory of 150 miles along Salinas River (CA) and developed long-term monitoring plan of riparian habitat; participated in development of "Middle Rio Grande Ecosystem: Bosque Biological Management Plan," including lead in recommending management practices to sustain and enhance value of key wildlife habitats; currently working on model to predict riparian vegetation responses to changes in fluvial hydrology within key riparian habitat on Rio Grande in New Mexico.
Chih Ted Yan, Ph.D.	Manager, Sedimentation and River Hydraulics Group, TSC, and professor associated with Colorado State University and University of Colorado. Publication of over 100 articles and 2 books on sedimentation, river mechanics, river morphology, hydraulics, hydrology, and water resources engineering. Has served as expert consultant and advisor on water resources projects at the request of the United Nations, World Bank, and U.S. and overseas government agencies.
Willows Construction Office (CA)	Directs preconstruction, onsite construction management, and construction contract administration for Reclamation's Mid-Pacific Region throughout California, Nevada, and southern Oregon. Provides a seasoned experience base (447 years) and maintains a diverse cadre of technical competence, including project construction engineer, health and safety manager, contracting officer, field engineering division, office engineering division, budget analyst, and administrative support staff. Projects include fish facilities, wildlife mitigation and enhancement, environmental restoration, and fish-screening facilities.

VI. STANDARD TERMS AND CONDITIONS

The U.S. Bureau of Reclamation has reviewed the terms and conditions as stipulated under this RFP and agrees with those conditions. Reclamation will comply with standard clauses/proposal requirements prior to signing of a formal contract.